

## **REMARKS**

In the last Office Action, the Examiner rejected claims 12 and 27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,191,182 to Popovich et al. ("*Popovich*") in view of U.S. Patent No. 5,683,584 to Wenthold et al. ("*Wenthold*"); rejected claims 13 and 28 under 35 U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold* and further in view of U.S. Patent No. 4,435,289 to Breslau ("*Breslau*"); rejected claims 14, 15, 29, and 30 under U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold* and further in view of U.S. Patent No. 6,572,641 to Brugger et al. ("*Brugger*"); and rejected claims 14, 15, 29, and 30 under U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold* and *Breslau* and further in view of *Brugger*.

## **REJECTION UNDER § 103(a)**

In the Office Action, the Examiner rejected claims 12 and 27 under 35 U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold*. Applicant respectfully traverses this rejection.

Several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims of a patent application under 35 U.S.C. § 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Examiner to:

- (1) Determine the scope and content of the prior art;
- (2) Ascertain the differences between the prior art and the claims in issue;
- (3) Resolve the level of ordinary skill in the pertinent art; and

(4) Evaluate evidence of secondary considerations.

The obviousness or non-obviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. at 467; see also *KSR Int'l Co. v. Teleflex Inc.*, 82 U.S.P.Q.2d 1385 (U.S. 2007); see also M.P.E.P. § 2141(II).

*Popovich* discloses "[a] process and apparatus . . . for continuously separating blood into plasma and cellular component fractions and returning the latter to the subject in admixture with a makeup fluid." (Abstract.) *Popovich* further discloses an ultrafiltration cell with an ultrafiltration membrane 11. (See col. 6, lines 38-43.) The Examiner concedes that "claims 12 and 27 essentially differ from the method and apparatus of Popovich et al in reciting a water permeability coefficient of the filter being at least 10 ml/min/mmHg and the cleaning fluid flow rate being at least 1000 ml/min." (Office Action at 3.) The Examiner states, however, that "Wenthold et al teach plasma filtering membranes having water permeability in excess of 900 ml/hr/mmHg/m<sup>2</sup> for 0.05 m<sup>2</sup> which is converted to be 300 ml/min/mmHg (see col. 38, line 67 - col. 39, line 15)." (Office Action at 3.) Applicant respectfully disagrees.

*Wenthold* discloses "[f]ibers for use in a water filter." (Col. 38, line 47.) Regarding the fibers for the water filter, *Wenthold* states that the "[f]iber bundles were dried and tested. Based on a 0.05 m<sup>2</sup> test mat, at 5 psi, water permeability was calculated to be 500 mL/hr/mmHg/m<sup>2</sup>." (Col. 38, line 67 - col. 39, line 2.) In addition to the fibers for the water filter, *Wenthold* discloses "[f]ibers for use in a plasma filter." (Col. 39, line 6.) Regarding the fibers for the plasma filter, *Wenthold* states that the "[w]ater permeability was in excess of 900 mL/hr/mmHg/m<sup>2</sup>."

As an initial matter, the 0.05 m<sup>2</sup> test mat is described in relation to the water filter and not the plasma filter. Even assuming the 0.05 m<sup>2</sup> mat is used with the plasma filter, which Applicant does not concede is disclosed, the proper conversion results in a water permeability of 0.75 ml/min/mmHg and **not** 300 ml/min/mmHg as asserted by the Examiner. For example:

$$900 \text{ ml/hr/mmHg/m}^2 * (1 \text{ hr} / 60 \text{ min}) = 15 \text{ ml/min/mmHg/m}^2; \text{ and}$$

$$15 \text{ ml/min/mmHg/m}^2 * (0.05 \text{ m}^2) = 0.75 \text{ ml/min/mmHg}.$$

Therefore, neither *Popovich* nor *Wenthold* teach, disclose, or suggest "a water permeability coefficient L<sub>p</sub>A of the filter [being] at least 10 ml/min/mmHg" (emphasis added), as recited in independent claim 12 or "the filter [having] a water permeability coefficient L<sub>p</sub>A of at least 10 ml/min/mmHg," as recited in independent claim 27. Accordingly, the Examiner has not properly determined the scope and content of the prior art.

The Examiner also alleges that "it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the flow rate of cleaning fluid, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art." (Office Action at 3.)

Applicant submits that the general conditions of Applicant's claim are not disclosed in the prior art. For example, as noted in paragraph [0035] of Applicant's published specification, the flow rate used in the invention "may be 10 times higher than normal." (Specification ¶ [0035], emphasis added.) In other words, the flow rates used in Applicant's invention are much higher than the flow rates used in the prior art based

on the general conditions known in the prior art. Furthermore, as mentioned above, the Examiner has not shown that the prior art discloses "a water permeability coefficient  $L_pA$  of the filter [being] at least 10 ml/min/mm Hg," as recited in independent claim 12 or "the filter [having] a water permeability coefficient  $L_pA$  of at least 10 ml/min/mm Hg," as recited in independent claim 27. Therefore, Applicant's invention differs substantially from the general conditions known in the prior art, and would not have been obvious to one of ordinary skill in the art at the time of the invention.

For at least the aforementioned reasons, independent claims 12 and 27 are allowable over the cited reference and the § 103(a) rejection of independent claims 12 and 27 should be withdrawn.

In the Office Action, the Examiner rejected claims 13 and 28 under 35 U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold* and further in view of *Breslau*. Applicant respectfully traverses this rejection.

*Breslau* discloses a "[p]rocess and apparatus for providing separation of solutes, colloidal particles or suspended matter by ultrafiltration[,] wherein increased cost efficiency and reduced energy requirements are realized by series flow configuration." (Abstract.) *Breslau*, however, does not remedy the deficiencies of *Popovich* and *Wenthold* described above. Specifically, *Breslau* does not teach, suggest, or disclose "a water permeability coefficient  $L_pA$  of the filter [being] at least 10 ml/min/mm Hg," as recited in independent claim 12 or "the filter [having] a water permeability coefficient  $L_pA$  of at least 10 ml/min/mm Hg," as recited in independent claim 27.

Accordingly, the Examiner should withdraw the § 103 rejection of claims 13 and 28 due to their dependence from independent claims 12 and 27, and due to their additional recitations of patentable subject matter.

Claims 14, 15, 29, and 30 were rejected U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold* and further in view of *Brugger*.

*Brugger* discloses "[a]n external fluid warming device . . . that includes a fluid warming chamber and an air separation chamber." (Abstract.) "The fluid inlet is connected to a source of fluid and the fluid outlet is connected to an output device, such as an ultrafiltration machine." (Abstract.)

*Brugger*, however, does not remedy the deficiencies of *Popovich* and *Wenthold* described above. Specifically, *Brugger* does not teach, suggest, or disclose "a water permeability coefficient  $L_pA$  of the filter [being] at least 10 ml/min/mm Hg," as recited in independent claim 12 or "the filter [having] a water permeability coefficient  $L_pA$  of at least 10 ml/min/mm Hg," as recited in independent claim 27.

Accordingly, the Examiner should withdraw the § 103 rejection of claims 14, 15, 29, and 30 due to their dependence from independent claims 12 and 27, and due to their additional recitations of patentable subject matter.

Claims 14, 15, 29, and 30 were also rejected U.S.C. § 103(a) as being unpatentable over *Popovich* in view of *Wenthold* and *Breslau* and further in view of *Brugger*.

As noted previously, *Popovich*, *Wenthold*, *Breslau*, and *Brugger* do not teach, suggest, or disclose "a water permeability coefficient  $L_pA$  of the filter [being] at least 10 ml/min/mm Hg," as recited in independent claim 12 or "the filter [having] a water

permeability coefficient  $L_pA$  of at least 10 ml/min/mm Hg," as recited in independent claim 27.

Accordingly, the Examiner should withdraw the § 103 rejection of claims 14, 15, 29, and 30 due to their dependence from independent claims 12 and 27, and due to their additional recitations of patentable subject matter.

### **CONCLUSION**

In view of the foregoing remarks, the examiner is respectfully requested to reconsider his position and to timely allow the present application

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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